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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,047	02/02/2004	Kalin Spariosu	PD-02W202	1523
7590	10/25/2006		EXAMINER NGUYEN, PHILLIP	
John E. Gunther Raytheon Company P.O. Box 902 (E1/E150) El Segundo, CA 90245-0902			ART UNIT 2828	PAPER NUMBER

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/771,047	Applicant(s) SPARIOSU ET AL.	
	Examiner Phillip Nguyen	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-57 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 11 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 46 and 52-56 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-8,12-17,29-45,47-51 and 57 is/are rejected.
- 7) ☒ Claim(s) 3 and 18-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-3, 5-9, and 12-57 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 29-45 and 47-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 29 recites "first means for receiving plural single mode beams of electromagnetic energy and providing flat-top beams as output" and "second means for combining said flat-top beams via spatial filtering" which is not clear since the specification describes that the spatial filter 12 includes the beam-flattening optics 20 (page 6, lines 10-18). Therefore the first means cannot be separated from the second means. Claims 30-45 and 47-51 are to depend on claim 29 and therefore become infinite as well.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 5-8, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Craig et al. (US Patent No. 6356574).

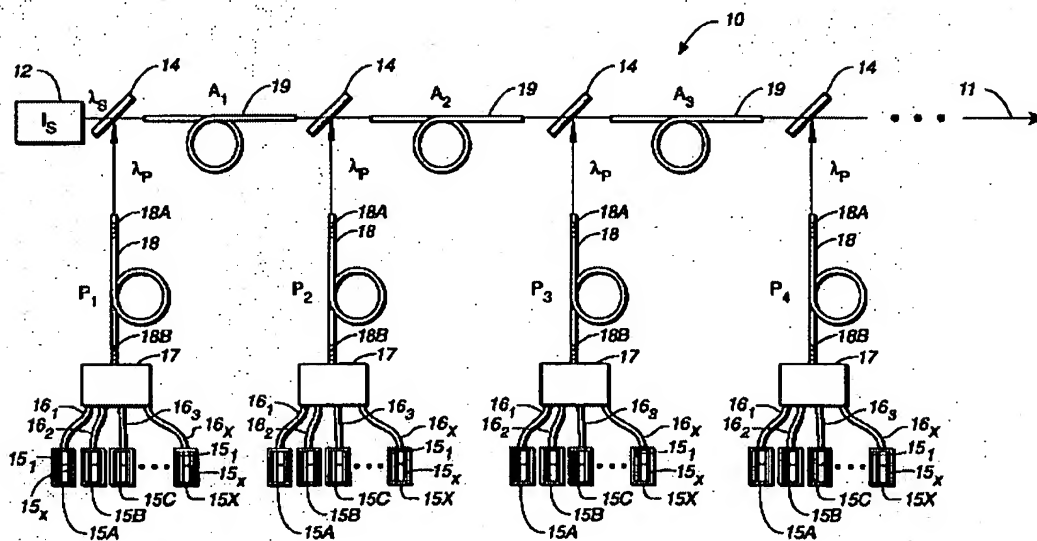


FIG. 1

With respect to claim 1, Craig discloses in Fig. 1 above a laser system comprising plural fiber laser resonators 18; a high power laser pump source 15 coupled to each of said laser resonators; and a cavity 14 and 19 external to said laser resonators, said cavity adapted to

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combine plural laser beams output from said plural laser resonators into a single output laser beam 11. It is noted that the reflectors 18A and 18B define the laser resonators (grating). Since Craig discloses the output beam being 1.55 microns, which falls in an eye safe laser range 1.4-1.8 microns as disclosed in the specification (see col. 9, lines 40-42).

With respect to claim 5, Craig discloses wherein each of the power laser pump sources includes a laser diode (col. 8, line 60).

With respect to claim 6, Craig discloses the pump sources are end coupled via discrete imaging optics 74.

With respect to claim 7, Craig discloses in Fig. 14-15 the pump sources are side coupled.

With respect to claim 8, it is believed that Craig discloses the laser resonators with same lengths.

With respect to claim, Craig discloses the cavity incorporating a light pipe which is optical fiber 19.

4. Claims 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Leger et al. (US Patent No. 5027359). Leger discloses in Fig. 1 a beam phase locking system comprising first means 18 for receiving plural single-mode beams of electromagnetic energy and providing flat-top beams as output in response thereto and second means 20 for combining said flat-top beams via spatial filtering and providing a collimated combined beam in response thereto.

5. Claim 29 is rejected under 35 U.S.C. 102(e) as being anticipated by Feldman (US Patent No. 6671098). Feldman discloses in Fig. 1 a beam phase locking system comprising first means 20 for receiving plural single-mode beams of electromagnetic energy and providing flat-top

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beams as output in response thereto and second means 80 for combining said flat-top beams via spatial filtering and providing a collimated combined beam in response thereto.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 13-17, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Craig et al. (US Patent No. 6356574) in view of Stultz et al. (US Patent No. 5652756).

With respect to claims 2, 13, and 57, Craig discloses the claimed invention except for the fiber laser resonators are eye safe fiber laser resonators. Stultz discloses in Fig. 1 a laser apparatus with a pump source 32, an eye safe fiber laser resonator which includes a Q-switch. It would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide a Q-switch to make the laser resonator eye safe and increase the intense of the laser beam (col. 1, lines 28-31).

With respect to claim 14, Craig discloses means for combining includes an external cavity. It is note the claim fails to define the external cavity, examiner assumes that the external cavity is a light combining system that would also includes space (cavity) between the elements in the combining system. In this case, the external cavity comprises spaces between 18A and the mirror 14 and also from A1 to A3 to provide a combined laser output beam 11.

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With respect to claim 15, Craig discloses the laser resonators 18 being coupled to a plurality of pump sources 15.

With respect to claims 16-17, Craig discloses the fiber laser resonators including integrated reflectors 18A and 18B which are DBRs.

7. Claims 30 and 41-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feldman (US Patent No. 6671098) in view of Craig et al. (US Patent No. 6356574).

With respect to claim 30, Feldman discloses the claimed invention except for said first means including plural multiple fiber laser oscillators having integrated Bragg grating mirrors, said integrated Bragg grating mirrors representing a first end of a spatial filter included in the second means. Craig discloses means for receiving plural single-mode beams of electromagnetic energy and providing flat-top beams as output in response in Fig. 1 with a multiple fiber laser oscillators 18 having integrated Bragg grating mirrors 18A and 18B. It would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide first means as taught by Craig to Feldman in order to amplify the input beams.

With respect to claims 41-42, Feldman discloses the spatial filter includes a collimating lens pair 90 and 110 and an aperture 100 in between and the focal point of the first collimating lens and second collimating lens are approximately coincide at said aperture.

With respect to claim 43, Feldman further discloses a feedback mirror (movable output mirror) positioned adjacent to one of said collimating lenses and at the second end of the spatial filter 20, said feedback mirror partially transmissive.

With respect to claims 44-45, Feldman discloses the first means includes beam flattening optics (microlens array). It is obvious to use a lens with a hexagonal geometry instead of one dimensional lens array when the input signals come from a bundle of fiber having hexagonal geometry arrangement.

Allowable Subject Matter

8. Claims 3, 9 and 18-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 31-45 and 47-51 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 52-56 are allowed.

Communication Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM.

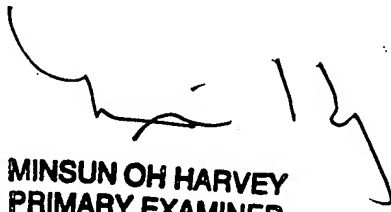
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**MINSUN OH HARVEY
PRIMARY EXAMINER**